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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,253	10/27/2003	YiRen Hong	1229.006	4327

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EXAMINER

MULLINS, BURTON S

ART UNIT	PAPER NUMBER
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2834

MAIL DATE	DELIVERY MODE
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05/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/695,253

Applicant(s)

HONG ET AL.

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-9,11,12,14-17 and 19-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-9,11,12,14-17 and 19-22 is/are rejected.
- 7) ☒ Claim(s) 23-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 26 March 2007, with respect to claims 1-25 have been fully considered and are persuasive. The finality of the previous office action has been withdrawn. However, upon further consideration, new grounds of rejection are made.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 7-9, 15-17, 20 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Dunfield et al. (US 5,694,268). Dunfield teaches a spindle motor comprising: a rotatable component 36 defining a bearing gap and relatively rotatable with a stationary component 34; a base plate 12 affixed to the stationary component; a stator 38, affixed to the stationary component, for generating an electromagnetic force that interacts with a magnet 70 affixed to the rotatable component and drives the rotatable component, wherein the stator 72 and the base plate 12 define a separation there between (not numbered, Fig.2), and wherein the stator 38 is situated radially outside the magnet 70 (Fig.2); a motor seal (flux shield) 82/292 situated radially outside the magnet and positioned axially above the stator (Figs.2&11; the flux shield is a "seal" in the sense that it covers the top of the stator); and a bonding substance 209 (overmold comprising rubber/plastic material, c.8:12-19; Figs.8-11) formed substantially about the stator, substantially filling the separation and uniting the base plate 266, the motor seal 292 and the stator (Fig.11),

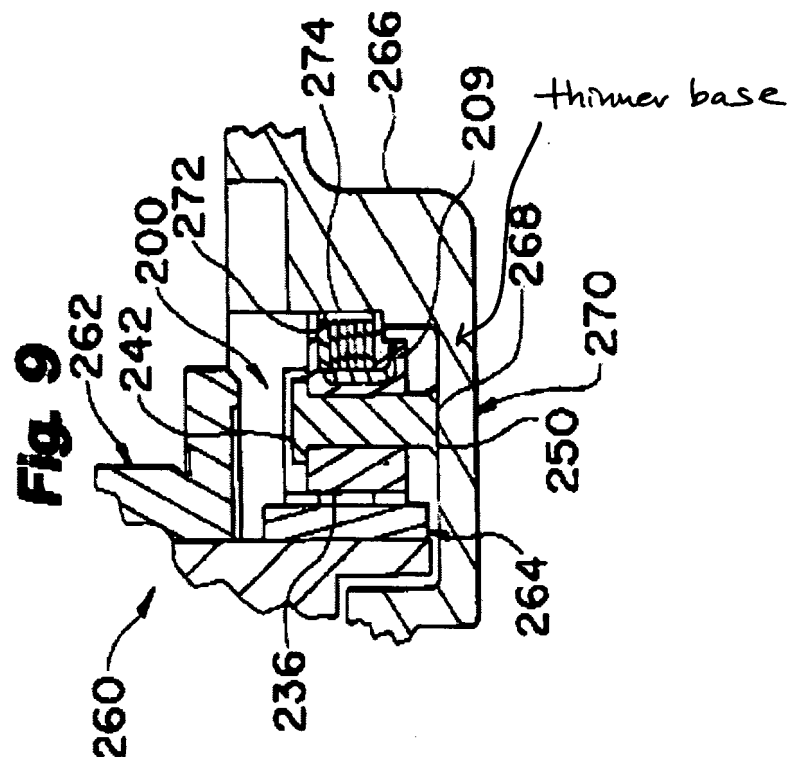
Art Unit: 2834

wherein the base plate axial thickness is minimized adjacent to the separation (as seen in Fig.9, base is thinner adjacent the separation than at outside perimeter thereof).

U.S. Patent

Dec. 2, 1997

Sheet 6 of 14

5,694,268

Regarding claims 7 and 15, a portion of the base plate adjacent to the separation defines an opening that is substantially filled with the bonding substance 209, and the bonding substance forms a contiguous base plate 266, i.e. the two parts are in contact or integrated.

Regarding claims 8 and 16, a portion of the stator is positioned below an adjacent surface of the base plate, wherein the base plate has a varied axial thickness (see Fig.9 above).

Regarding claim 9, Dunfield's motor is a spindle motor for a disk drive (abstract).

Further, note data storage disc 16 attached to the rotatable component (c.4:32-35).

Art Unit: 2834

Regarding method claims 17, 20 and 22, the generic steps are inherent to Dunfield since the associated elements would necessarily require the recited steps during manufacture of the motor.

4. Claims 1, 3, 9, 15, 17 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Lieu et al. (US 6,844,636). Lieu teaches a spindle motor comprising: a rotatable component 100 defining a bearing gap (with bearings 107) and relatively rotatable with a stationary component (shaft) 106 (Fig.14); a base plate 105 affixed to the stationary component; a stator 104 affixed to the stationary component, for generating an electromagnetic force that interacts with a magnet 103 affixed to the rotatable component 100 and drives the rotatable component, wherein the stator 104 and the base plate 105 define a separation there between (Fig.14), and wherein the stator is situated radially outside the magnet (Fig.14); a motor seal (comprising thermoplastic portion 116 on top of stator coil 111; Fig.14) situated radially outside the magnet and positioned axially above the stator 104 (Fig.14); and a bonding substance (thermoplastic) 116, formed substantially about the stator 104, substantially filling the separation and uniting the base plate 105, the motor seal 116 and the stator 104, wherein the base plate axial thickness is minimized adjacent to the separation (inherent).

Regarding claim 3, the bonding thermoplastic 116 is a generic form of thermally conductive epoxy.

Regarding claims 7 and 15, a portion of the base plate adjacent to the separation defines an opening that is substantially filled with the bonding substance 116, and the bonding substance forms a contiguous base plate 105 (Fig.14), i.e. the two parts are in contact or integrated.

Regarding claim 9, Lieu's motor is a spindle motor for a disk drive (c.1:17-29).

Art Unit: 2834

Regarding method claims 17 and 22, the generic steps are inherent since the associated elements would necessarily require the recited steps during manufacture of the motor.

5. Claims 1, 7-9, 14, 16, 17, 20 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by MacLeod et al. (US 6,282,053). MacLeod teaches a spindle motor comprising: a rotatable component 40/42 defining a bearing gap (with bearings 24) and relatively rotatable with a stationary component (shaft) 20 (Fig.2); a base plate 100 affixed to the stationary component; a stator 80 affixed to the stationary component, for generating an electromagnetic force that interacts with a magnet 46 affixed to the rotatable component 40/42 and drives the rotatable component, wherein the stator 80 and the base plate 100 define a separation there between (not numbered, Fig.7), and wherein the stator 80 is situated radially outside the magnet 46 (Fig.2); a motor seal (comprising overmold) 92 situated radially outside the magnet 46 and positioned axially above the stator 80 (Fig.7); and a bonding substance (plastic overmold) 92, formed substantially about the stator 80 (c.5:28-48; Figs.4-5&7), substantially filling the separation and uniting the base plate 100, the motor seal 92 and the stator 80, wherein the base plate axial thickness 100 is minimized adjacent to the separation (inherent).



Regarding method claims 17, 20 and 22, the generic steps are inherent since the associated elements would necessarily require the recited steps during manufacture of the motor.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 6, 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Dunfield, Lieu or MacLeod. The specific thickness of the base plate in each of these references is not disclosed as in the range of 0.1 to 0.3 mm; however, determining the range of thickness would have been a matter of obvious engineering design.

8. Claims 3-4, 11-12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Dunfield or MacLeod, further in view of Nakamura (US 5,490,319). Dunfield and MacLeod do not teach a thermally conductive epoxy, per se. Nakamura teaches a thermally conductive epoxy composition 6 used to encapsulate stators where high electrical insulation and heat conducting properties are desired.

It would have been obvious to employ a thermally conductive epoxy per Nakamura to encapsulate the motors of Dunfield, Lieu or MacLeod so as to provide electrical insulation and heat conduction.

Regarding claims 4 and 12, use of specific known materials would have been obvious as a matter of engineering design.

Allowable Subject Matter

9. Claims 23-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach the claimed spindle motor and

Art Unit: 2834

manufacturing method including, inter alia, wherein a portion of the base plate adjacent to the separation defines an opening that is substantially filled with the bonding substance, the bonding substance forming a contiguous base plate, and wherein a portion of the stator is positioned below an adjacent surface of the base plate, the base plate having a varied axial thickness.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
11 May 2007